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ABSTRACT

The handbook is intended to be part of a graduate course entitled "Education of Visually Handicapped Children" which is taught via computer assisted instruction to teachers in rural areas. Course topics include: education of visually handicapped children, clinical and functional identification criteria, collection of educationally relevant information, the process of seeing, common causes of poor vision, construction of instructional objectives, selection of instructional media and materials, arrangement of classroom environmental conditions, design of instructional procedures, and utilization of appropriate techniques for evaluating performance. Stressed throughout the course are the efficient use of auditory, tactile, and residual visual abilities; careful observation of individual differences; and the development of positive self attitudes in visually handicapped children. (See ED 054 063 for a related document). (DB)

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THE COMPUTER ASSISTED
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Report No. R-50

Computer Assisted Remedial Education: Education of Visually Handicapped Children

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CARE 4

Computer Assisted Remedial Education

EDUCATION OF VISUALLY HANDICAPPED CHILDREN

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1972

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PREFACE

Computer Assisted Remedial Education 4 (CARE 4) is a graduate course entitled "Education of Visually Handicapped Children." CARE 4, one of a series of courses taught via computer-assisted instruction (CAI), was developed as a result of a Special Project performed pursuant to a grant under Title VI of the Education of the Handicapped Act of 1970 (P.L. 91-230) at the University of Pittsburgh in consortium with the CAI Laboratory at The Pennsylvania State University. The course is designed to be taken by students either following the completion of other CARE courses[1] or in isolation

The purpose of CARE 4 is to equip regular classroom teachers with the knowledge and skills necessary to manage the instruction of visually handicapped children in regular classes. The course material has been selected with rural classroom teachers in mind, since at present in many rural areas professional services of a specialist are minimal or nonexistant. The material is also appropriate for inservice teachers in other settings as well as for preservice teachers.

CARE 4 is presented to students by means of a CAI system in which each student works individually on the course at his own student terminal or station. Each station, which is linked to the computer, is comprised of the following components: cathode-ray tube or CRT, typewriter-like keyboard, light-sensitive pen, audio unit, and self-contained image projector.

Each student who takes CARE 4 will receive a copy of this *CARE 4 Handbook.* The *CARE 4 Handbook* can be considered a detailed set of notes which contains excerpts from the course content presented to the student at his student terminal. The *Handbook* is to be used only in conjunction with on-line material.

Each student who takes CARE 4 is expected to purchase a copy of *Teaching About Vision,* a book published by the National Society for the Prevention of Blindness, Inc., 79 Madison Avenue, New York, New York 10016 (1972). This book contains information which the student should find useful both while taking CARE 4 and after completing the course. In addition, each student should procure a copy of the pamphlet entitled "Helping the Partially Seeing Child in the Regular Classroom" which is available from the Pittsburgh Branch, Pennsylvania Association for the Blind, 308 South Craig Street, Pittsburgh, Pennsylvania 15213.

The following chart illustrates the coordination of the CARE 4 chapters on-line, the *CARE 4 Handbook, Teaching About Vision,* and "Helping the Partially Seeing Child in the Regular Classroom." The student can use the chart to determine which chapters in the off-line materials should be reviewed before starting CARE 4 chapters on-line.

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[1]CARE 1 is "Early Identification of Handicapped Children," CARE 2 is "Diagnostic/Prescriptive Teaching of Preschool Children," and CARE 3 is "Diagnostic/Prescriptive Teaching of Primary School Children."

Source	Chapters										
CARE 4 Chapters On-Line	1	2	3	4	5	6	7	8	9	10	11
CARE 4 *Handbook* Chapters	1	2	3	4	5	6	7	8	9	10	11
Teaching About Vision Chapters		3		1	2,4			5		6	
"Helping the Partially Seeing Child"					All						

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CHAPTER ONE

EDUCATION OF VISUALLY HANDICAPPED CHILDREN

INTRODUCTION

The course you are about to begin is designed to provide you with basic knowledge regarding children who are visually handicapped, either blind or partially seeing. We recognize that you bring to this course a background of knowledge and experience with normal children. This will contribute to your understanding of visually handicapped children. In addition, we recognize that you bring with you some ideas and feelings about children with visual handicaps. These feelings may have developed as a result of your experiences, reflections, observations, readings, or conversations with others. Some of your feelings may be reinforced, challenged, or changed as you pursue this course.

The purpose of this course is to provide you with knowledge and skills you should find useful in managing the instruction of visually handicapped children in regular classrooms.

EDUCATIONAL INFORMATION PROCESSING MODEL: INPUT CHANNELS

The Educational Information Processing Model (Plate 1.1) specifies three sensory input channels for gathering information from the surroundings. These channels are particularly important for educational purposes. Any impairment in one or more of them may influence a student's observable behavior, either vocal or motor.

Visual Input Channel

Behavior of normally seeing persons is under visual control most of the time. Vision enables a person to *monitor* behavior, *integrate* auditory and tactile sensations with visual input, and *confirm* what has been done. Vision can also *stimulate* behavior.

The partially seeing person whose visual efficiency is affected by the environmental conditions and the requirements of the task he must perform may have useful vision in some situations but not in others. The totally blind person has no useful or functional vision.

Auditory Input Channel

The auditory input channel receives and transmits stimuli from the environment to the brain. Individuals *become aware* of sounds, *discriminate* sounds,

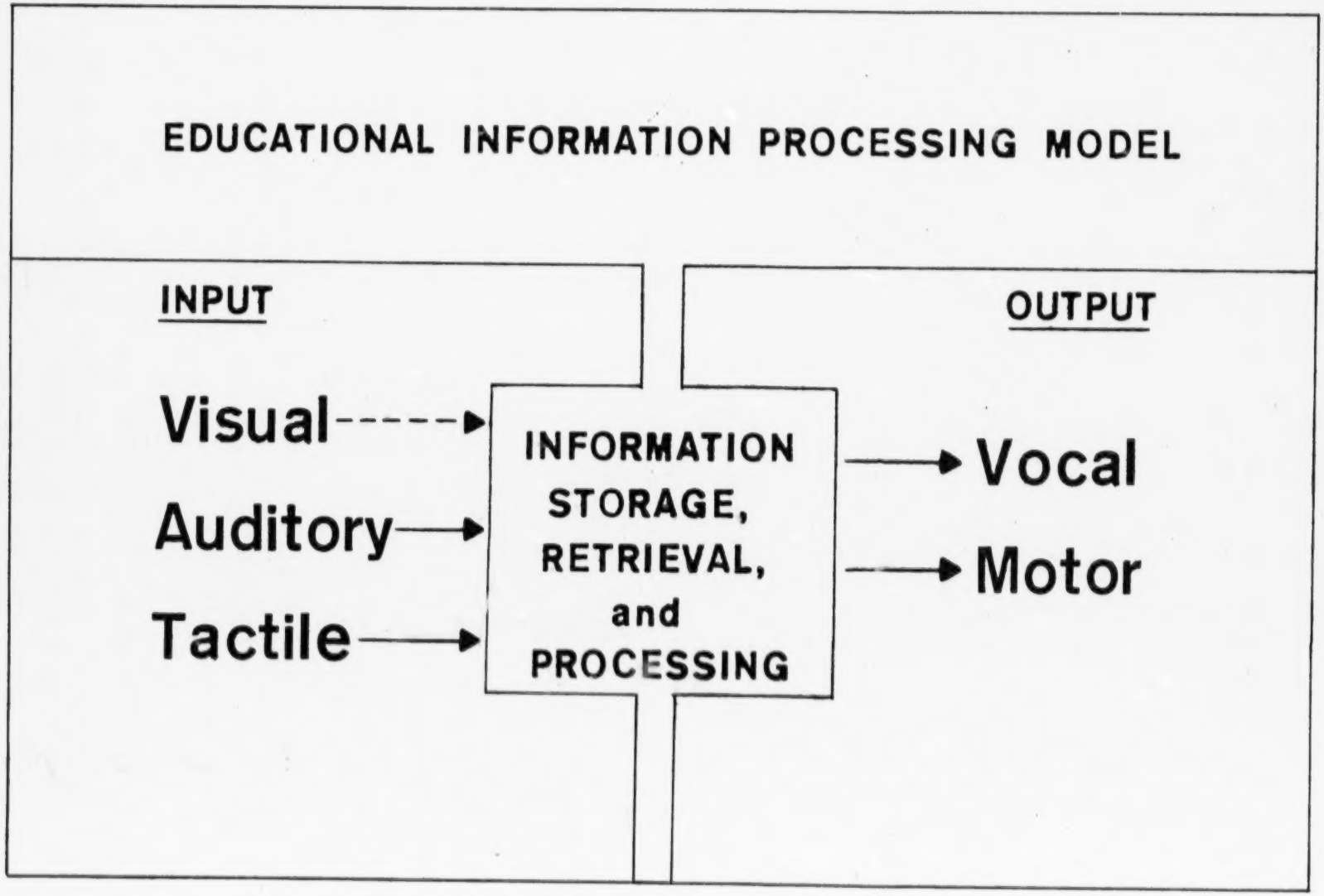


PLATE 1.1

SENSORY INPUT CHANNELS

identify sounds, and *locate* the direction and speed of sounds. Auditory input also provides information regarding any change in the distance and direction of moving objects which emit sounds.

School children, particularly those who have a visual impairment, have a variety of purposes for listening. Some of these purposes are:

1. to get information,
2. to identify sounds and voices, and
3. to determine the speed and direction of sounds.

Although information gained by listening increases the total amount of information a student collects from his environment, such information contributes little data necessary for the construction of concrete ideas of size, shape, color, or dimension.

Tactile Input Channel

Analytic touch and synthetic touch provide tactile information to students about objects in their environment. *Analytic touch* refers to the examination of the parts of an object to construct an idea of the entire object. When a child tactually examines a wagon, he assembles his impressions of the wheels, axle, wagon bed, and other parts into his idea of 'wagon.' *Synthetic touch* refers to the examination of an entire object in the hand or hands to obtain a general idea of the object before attending to its specific parts. A child might enclose a coin in his hand and feel its roundness and thickness before attending to the ridged edge, its diameter in relation to other coins, or the designs embossed on each side of the coin.

Analytic touch and synthetic touch in combination with muscle or kinesthetic sensations provide additional information about physical characteristics of objects. Muscle sensations come with muscle contraction and relaxation, as in lifting, rubbing, turning, or squeezing. These sensations contribute information about the weight, size, shape, and hardness of objects. Muscle sensations can also stimulate the awareness of distance from the body to points in space. Physical exploration of the environment and body movement in space and in contact with other people and objects can facilitate the development of such concepts as form, shape, direction, three dimension, and time.

Although the senses of taste and smell also receive information from the environment, for educational purposes, most sensory input comes from the auditory and tactile input channels when vision is limited or absent.

Children who are blind or partially seeing do not receive any sixth sense to compensate for their limitation. They can, however, learn to use their other senses more efficiently. Teachers who have visually handicapped children in their classrooms must work with these students to develop this *sensory acuteness*. Classroom activities fostering the development of sensory acuteness include those which require:

1. concentrating attention on sensory input, even limited visual input,
2. practicing auditory and tactile skills, and
3. using all possible opportunities for learning.

ORGANIZATIONAL PATTERNS FOR INSTRUCTION

The education of visually handicapped children in the United States can take place in a variety of settings. Many children with limited vision attend *residential schools* for the visually handicapped. The majority of children with limited vision, however, attend *local day school* programs.

Residential Schools

Most residential schools in the United States are *public, tax supported schools.* Some are *privately operated schools* which are reimbursed for the children they enroll.

Local Day School Programs

Several types of day school programs have been developed in the United States. The oldest kind is the *special class* located in a regular school or a school for handicapped children. The visually handicapped children in a special class form a self-contained unit for instruction and may have little association with the others in the school.

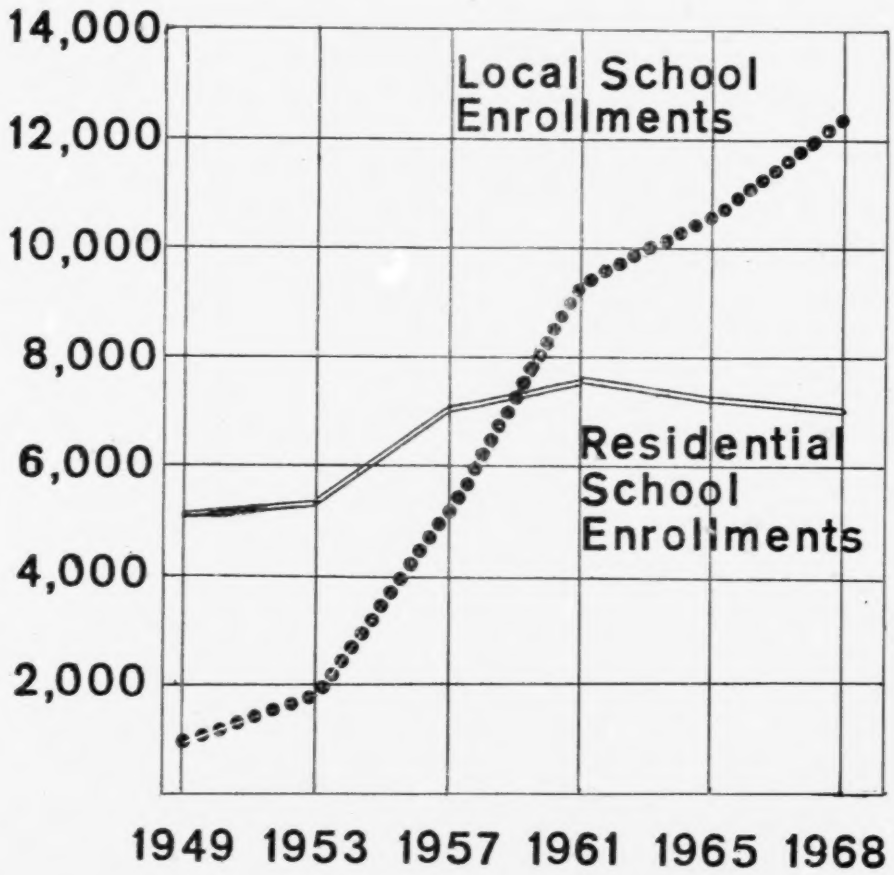
In the *cooperative class* the visually handicapped children are enrolled with a teacher of visually handicapped children. Their room serves as a homeroom and classroom but they attend regular classes with normally seeing children for certain periods.

Children in a *resource room program* are actually registered in a regular classroom. The regular classroom teacher has the primary responsibility for the visually handicapped child, as for all children in the room. Special instruction, books, and equipment are available from the resource room and resource teacher whenever they are necessary.

Under the *itinerant plan* the children are enrolled in regular schools near their homes. An itinerant or traveling teacher regularly visits the school to provide special instruction and materials as needed. The itinerant teacher also serves as a consultant to the classroom teacher and to other school personnel. The primary responsibility for the education of the visually handicapped child lies with the regular classroom teacher; the itinerant teacher provides supplementary services.

There is a trend indicating that increased numbers of visually handicapped children are attending local school programs. If this placement trend continues, regular classroom teachers can expect to have more visually handicapped students in their classes (Plate 1.2).

Some visually handicapped children have health problems, other sensory defects, or emotional problems which impede their academic and social development. School personnel must be sensitive to the possibility of additional handicapping conditions when determining appropriate placement for each child.



Number of school children registered with the American Printing House for The Blind: selected years.

Compiled from annual reports and summary tabulations of the American Printing House for the Blind, Louisville, Kentucky.

CARE 4 COURSE OBJECTIVES

In light of the current placement trend, classroom teachers and other school personnel must be prepared to assume their responsibilities for the education of children with limited vision. This course should equip teachers and school personnel to make instructional decisions about classroom management of visually handicapped children in classes with normally seeing children. Specifically, those who complete CARE 4 should be able to *identify* educationally relevant characteristics of visually handicapped children, *construct* instructional objectives for these children, *select* suitable media and materials for instruction, *arrange* proper classroom environmental conditions, *design* instructional procedures to facilitiate learning, and *utilize* appropriate techniques for evaluating the performance of visually handicapped children.

CHAPTER TWO

IDENTIFICATION OF VISUALLY HANDICAPPED CHILDREN

Visually handicapped children make up a comparatively small group among the estimated six million handicapped children in the United States today. Within this group are children who are partially seeing and those who are blind. Children whose vision after correction is limited but still useful for many purposes including acquiring an education are called partially seeing. Blind children are those with no useful vision; they function in school programs chiefly through the use of braille, audio aids, and special equipment. The distinguishing factor between the children in each case is the amount of useful vision.

Descriptions of both partially seeing and blind children can be classified as *clinical* or *functional* (see Plate 2-1). The information in both types of descriptions is important for teachers to understand.

Clinical Information

Clinical information includes quantitative measures, the most common of which is central visual acuity. Central visual acuity means sharpness or clearness of focus.

Far (or distant) and near central visual acuity can be estimated through the use of tests. The screening tool most frequently used in school is the test with the Snellen chart. The person with normal vision should be able to identify the twenty-foot line on the chart from a distance of twenty feet. Thus, normal visual acuity for distance vision is reported as 20/20. The first number indicates the distance from the chart, the second the line on the chart seen from that distance. The person who can only identify the largest symbol on the chart, the two-hundred-foot line, would have his acuity reported as 20/200.

Visual acuity is estimated for each eye alone and with both eyes working together. The following abbreviations taken from Latin are used to record the acuities: O.D. for right eye, O.S. for left eye, O.U. for both eyes, and cc to indicate with corrective lenses.

Another clinical quantitative measure sometimes reported is the area of the visual field. A person's field of vision is the entire area he can see without shifting his gaze or moving his eyes. It is reported in degrees of arc.

An example of a clinical description of blindness which is used for legal purposes is: visual acuity of 20/200 or less in the better eye after correction or a severe field defect such that the widest diameter of vision subtends an angle no greater than 20 degrees of arc.

DEFINITIONS

A. Clinical
   1. acuity
   2. field

B. Functional
   1. acuity
   2. capacity
      a. amount
      b. length
   3. versatility
      a. color perception
      b. light/dark adaptation
      c. accommodation
      d. binocularity

PLATE 2.1

Clinical descriptions and definitions are used for certain legal purposes, as a basis for determining eligibility for special education programs and services, and as a means for establishing eligibility for special materials and equipment.

Acuity and field measures do not indicate what a child or an adult can do with the amount of vision he has; in other words, they do not reveal how a person functions visually.

Functional Information

Functional information refers to how a person uses whatever vision he has. One component of visual functioning is central visual acuity, both near and distant, as described earlier. Some visually handicapped persons demonstrate good distance vision, but they cannot see detail or objects close to them or read normal print sizes. Others read even the telephone book but see only blurs or shadows beyond the tips of their outstretched arms.

Another component of visual functioning is visual capacity. This refers to how much a person can take in visually and for how long he can continue to use his eyes efficiently.

A third component of visual functioning is versatility. Visual versatility includes perception and discrimination of color, adaptation to high and low levels of illumination, accommodation or rapid adjustment of focus to near and far points of interest, and binocularity or the ability to use both eyes together. Also involved are depth perception and the recognition of the solidarity of objects in space.

Until recently, children with very little vision were advised to conserve and to save their limited eyesight; sight-saving classes were organized and staffed with sight conservation teachers who encouraged their students to limited use of the eyes. Today, eye specialists assure us that the proper use of the eyes will not, except in unusual conditions, lead to further damage or deterioration of vision. Children and adults with visual handicaps are being urged to use whatever vision they have as efficiently as possible. The emphasis is on stimulation of low vision and sight utilization, and school programs are incorporating materials and procedures to assist students in increasing their levels of visual functioning.

CHAPTER THREE

COLLECTION OF EDUCATIONALLY RELEVANT INFORMATION ABOUT VISUALLY HANDICAPPED CHILDREN

Kinds of Information

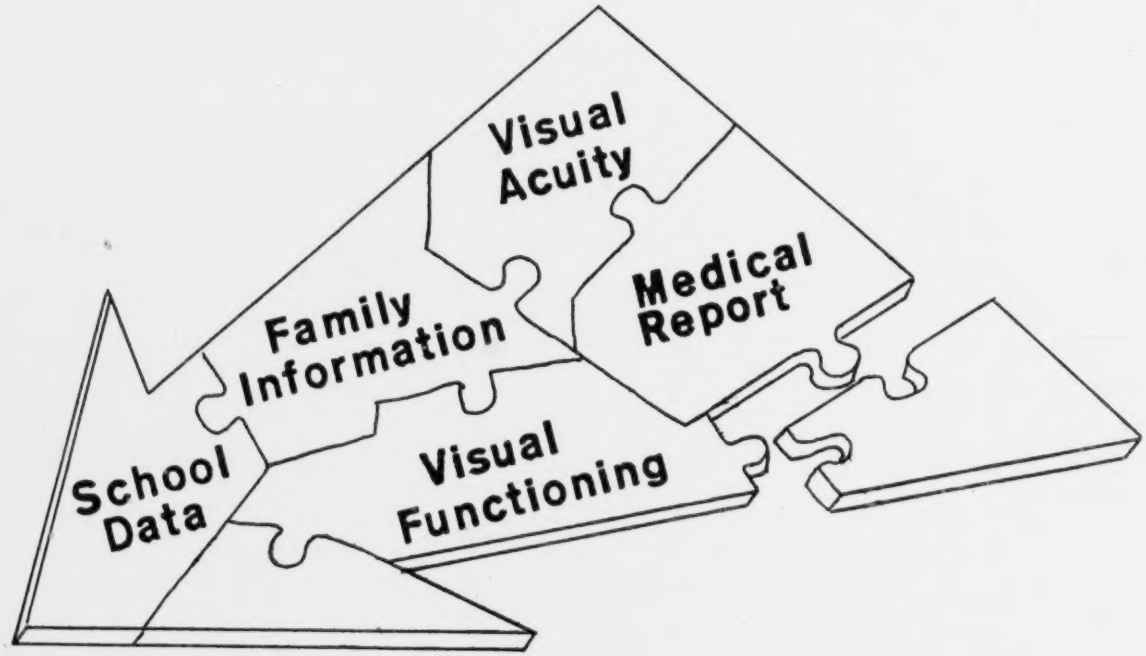
Teachers need a variety of information about their students to assist them in making instructional decisions. Much of the information is available in school records or from other school personnel. Other information must be obtained by the teachers themselves (see Plate 3.1).

Teachers often receive information about the families of their students. It is the teachers' task to sort out from this information that which is interesting, unusual, incidental, fragmentary, or of a confidential nature, and that which is helpful for instructional purposes.

Most information teachers learn about their students' families tells something about the family unit, its members, and perhaps the family attitudes. Some attitudes inferred from observation of members of a family which has a visually handicapped child range from a healthy acceptance of the child's limitations and an emphasis on his abilities rather than his disabilities, to rejection, overprotection, or denial of any limitation. Teachers often have the same concerns and reactions. These attitudes can influence the child's development and his feelings about himself.

Frequently, along with other information about a child identified as having limited vision, a teacher receives a *medical diagnosis*. In order to eliminate confusion, remember that there are differences between a medical diagnosis and an educational diagnosis. A teacher can make use of a medical report as one source of information when formulating an educational diagnosis.

Visual acuity has been described as a quantitative measure. A *visual acuity report* does provide the teacher with information about what a child did with his vision under specific conditions at one point in time. From visual acuity alone, however, a teacher cannot with any certainty make inferences about what a child can do under different conditions at other times. For this reason the teacher needs information about the *visual functioning* of each student who has limited vision. Since this kind of information is usually not available, the teacher must observe each child and assess his visual capacity and versatility in various school situations. As more school personnel learn more about educationally relevant characteristics of children, this information may become more readily available.



Educational Diagnosis

PLATE 3.1

Collecting Information by Observation of Behavior

Plate 3.2 lists some of the ways teachers collect information about their students. In addition to these, teachers can also gather information by carefully observing one or several students at a time as they perform in school.

Observing human behavior appears outwardly to be a very passive role; and outwardly, it should. In contrast to the appearance, however, the process of observing actually demands a great deal of concentration and sensitivity in order to collect the relevant information necessary to discover levels of development and to make instructional decisions.

A carefully recorded observation should indicate the specific focus, the conditions under which the observation was made, and the purpose of the observation. The focus may be on a small group of children, on one child, on one article and how different children use it, or on one task and how different children attack it. The purpose for making the observation may be to observe a process, a product or performance, or both a process and a product.

Educationally Relevant Information About Visually Handicapped Children

According to a study conducted several years ago based on records of partially seeing sixth-grade children located in day school programs across the country, the average partially seeing sixth-grade boy is one year and nine months over age for his grade. This fact carries important implications for classroom teachers. The study further indicated that the typical child was normal or near normal in intellectual ability as suggested by group tests and that he underachieved in academic subjects requiring concentrated, close work. Early identification followed by appropriate educational services could lessen the possibility of many partially seeing children falling behind in their school work.

Partially seeing children and, to a greater degree, blind children may be deficient in physical skills and motor coordination because of lack of or limited visual stimulation from their surroundings, little or no opportunity to imitate the behavior of others, or restricted opportunity for physical activity. These children may exhibit difficulties in orientation to the environment; posture or the continuous process of stabilizing head, trunk, and legs while either in motion or at rest; gait, which may appear awkward or unbalanced, slow, unnatural in position, or unequal in stride; and concepts of distance, time, space, and motion.

Results of various research studies have indicated that there are no *basic* differences in the adjustment of normally seeing and visually handicapped children; any differences are in degree rather than in kind. One factor contributing to differences that do occur is the effect limited vision can have on social and emotional development. Children learn about themselves to a great extent by monitoring the feedback (gestures, facial expressions, or shifts in body position) which other children and adults provide in reaction to their behavior. Visually

Peer Appraisal and Self–Report Techniques

- Interview
- Questionnaire
- Sociometric Techniques

Test Items

- Supply
- Selection
  - Alternative–Response
  - Matching
  - Multiple Choice
- Interpretive Exercise
- Essay

Observational Techniques

- Checklist
- Rating Scale
- Anecdotal Record

PLATE 3.2

handicapped children may make incorrect interpretations of some or all of the visual feedback or they may miss the feedback completely. This may lead to confusion about themselves and their relationships with others.

We think of vision as a continuum ranging from complete or total blindness through partial vision to normal vision or better (see Plate 3.3). The vision of normally seeing children and adults under varying conditions spans a large part of this continuum Extremely bright lights, rapid changes from light to dark, poor lighting on visual tasks, and glare are just some of the conditions that could cause a normally seeing person to behave as though he were visually limited. These same factors can have an even greater influence on the dynamics of visual functioning in partially seeing persons and can lead to inconsistent visual functioning which vacillates across a broad range of the continuum. It is important that the students with limited vision, their classmates, and their teachers take this into consideration as the school activities and conditions change throughout each day.

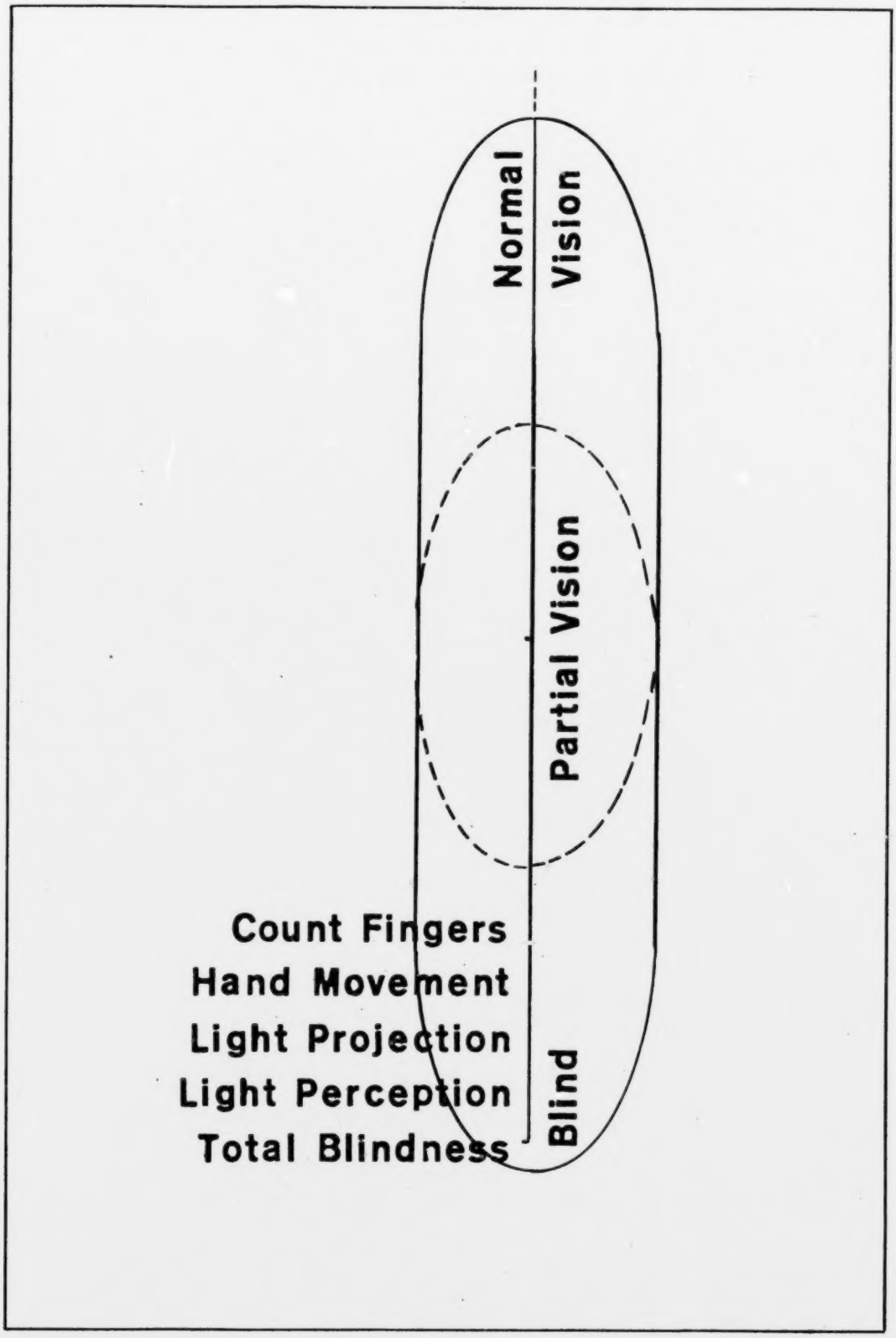

Normal Vision
Partial Vision
Blind
Count Fingers
Hand Movement
Light Projection
Light Perception
Total Blindness

PLATE 3.3

CHAPTER FOUR

THE PROCESS OF SEEING

Components of the Seeing Process

Objects become visible when light is reflected or thrown back from them into the eye. This reflected light stimulates nerve cells in the eye, which in turn transmit impulses to the brain.

A number of factors influence the effectiveness of the light component in the seeing process. One is the amount of light in the work area. In school, illumination may come from natural light (daylight), artificial light, or some combination of both. Other influences related to light are quality, color, the direction from which the light comes, and how the light is distributed or diffused over the work area.

Factors related to the object being viewed also influence the efficiency of the seeing process. One is the size of the object. Another is the amount of contrast between the object and the surrounding surfaces. Even a fairly large object may not be easily distinguished if there is little contrast between it and adjacent areas. Color and texture affect the reflection of light from an object and are related to contrast. Distance also is a factor; visibility depends upon an appropriate distance from the visual target to the eyes.

Internal factors related to the brain and the body as a whole can also influence the seeing process. Among these factors are motor abilities, psychological state, intellectual abilities, endurance, general health, and the efficiency of other sensory modalities.

The Human Eye

In Chapter One of *Teaching About Vision*, find the diagram of the human eye and locate the sclera, choroid, and retina. The sclera forms the white, opaque, protective layer of the eyeball. The cornea, a transparent area of the outer layer of the eyeball, attaches to the margins of the sclera and permits the entrance of light rays into the eye. The choroid, with its rich supply of blood, provides nutrition to the eye. The retina, the inner layer of the eye, is made up of a network of nerve cells. These cells are stimulated by the chemical changes which result when light rays strike the retina. They pass nerve impulses along the optic nerve, which carries them to the brain.

Locate the diagram in the first chapter of *Teaching about Vision* which shows the exterior muscles of the eye. Six pairs of extrinsic muscles under the direction of cranial nerves move the eyes in various directions.

Locate the iris on the diagram of the eye. The iris controls the amount of light entering the interior of the eye by altering the diameter of the pupil, the opening in

front of the lens. The thickness of the lens is adjusted by action of the ciliary muscle. The thicker the lens, the more powerful it is in bringing light rays to a point of focus on the retina. The lens is the only structure in the human eye that can accommodate for near and far objects in order to bring light rays to a sharp focus on the retina. This ability of the lens to accommodate or change in thickness decreases as a person grows older.

What has been described briefly here is the normal seeing process when the brain and the parts of the eye are coordinated for effective and efficient functioning. Many school children, however, have some type of visual impairment which disturbs the normal seeing process. Others may have some defect in the brain which might result in what has been called a visual perception problem. Such problems can interfere with the interpretation of impulses carried to the brain and possibly affect learning in school.

CHAPTER FIVE

COMMON CAUSES OF POOR VISION

The common conditions affecting the vision of school children can be classified by site or location and by etiology or cause. For purposes of this discussion, common conditions will be classified according to etiology.

Etiological classification include refractive errors, amblyopia ex anopsia or "lazy eye," injuries, prenatal conditions, tumors or neoplasms, poisonings, diseases, and a large number of conditions for which the exact causes are presently unknown to science.

Refractive errors account for poor vision among a large number of school children. The most common are myopia (nearsightedness), hyperopia (farsightedness), and astigmatism (irregular curvature of the cornea or lens).

Amblyopia ex anopsia refers to a reduction in the visual acuity of one eye in the absence of any organic eye disease. In the young child, this condition is usually correctable; if not identified and treated early, however, the reduced vision may be permanent.

Injuries to one or both eyes commonly come from blows, sharp objects, falls, fireworks, and flying objects. Among adolescents, injuries are the leading cause of loss of sight in one or both eyes. All school personnel need to be involved in preventive safety programs to eliminate eye injuries in school.

Prenatal conditions include those which are congenital or present at birth and those which are inherited and which may or may not be manifest at birth. Tumors, poisonings, chronic and infectious diseases, and the large group of conditions such as cataracts, for which the exact causes are still unknown to science, complete the list of etiological classifications of common causes of poor vision in school children.

Refer to Chapters Two and Four in *Teaching About Vision* for additional information about causes of visual impairment and suggestions for observing children for signs of visual problems.

CHAPTER SIX

CONSTRUCTION OF INSTRUCTIONAL OBJECTIVES

An instructional objective for a child who is visually handicapped, as for any other child, can be described as a clear statement of intent specifying what a learner can be expected to do at the end of a sequence of instruction in terms of observable human performance. Clearly stated instructional objectives enable the teacher to determine the degree of success the student has achieved in a particular learning task. They provide a basis for comparing a student's performance prior to instruction with his performance after instruction.

Instructional objectives include the *conditions* under which expected terminal behavior will occur, the expected *terminal behavior* and the *criteria* for determining success. Identify these three components in this objective:

> Given two addition problems with two three-digit numbers, student will write a correct answer to at least nine of the problems in fifteen minutes or less.

Objectives can be written for the cognitive, affective, and psychomotor domains of behavior. Although objectives for these domains may be considered separately, in reality they are interdependent.

Determination of Objectives

One source to use in the determination of an instructional objective is *direct observation* of student behavior. Sometimes a teacher will want to observe behavior as it occurs under certain specific conditions and in a certain amount of time; conditions will be arranged—a small group discussion, an art lesson, a reading lesson, math problems to be completed on the board. At other times, the teacher's interest will focus on behavior that occurs incidentally. In those cases, observations may be done when children are out for recess, in a lunchroom, in free play time, while classes change, or in other situations which are not carefully structured by the teacher for a particular purpose.

Both planned and incidental observations of partially seeing and blind students can be made to assess their cognitive, affective, and psychomotor development and behavior. Using this information, teachers can determine areas of strength and weakness and can write appropriate instructional objectives.

Another source for the determination of instructional objectives is the *curriculum*. In some schools the curriculum for each particular subject and grade level is predetermined, and the teacher has only limited freedom to deviate from what is specified. In other schools the curriculum serves as a framework within

which the teacher can be more flexible in planning instructional objectives and in designing instructional strategies to reach the objectives. In either case, the curriculum must be considered when preparing instructional objectives.

In preparing objectives the teacher must also consider the *special needs* of the particular child. For the visually handicapped child, these needs might include special materials, sensory training, and sight utilization. Direct observation should yield information about the special needs of students.

Special Needs of Visually Handicapped Children

Partially seeing children may profit from special materials such as those produced in large type. Reading materials may also be recorded on tapes or records. Some students may use the braille system for touch reading (see Plate 6.1 and Plate 6.2).

Deliberate training in the use of the remaining senses is a very important need for both partially seeing and blind children. Efficient use of both auditory and tactile senses can increase the level of competency in such curricular areas as listening, typewriting, use of adaptive equipment, and basic independent travel.

Short periods of planned lessons in sight stimulation and utilization are desirable for those students with residual vision, no matter how limited that vision might be. Activities to stimulate the use of low vision might begin with the identification of objects and shapes and then become progressively more visually demanding. Sight utilization activities can be designed to improve independent travel by having the student learn to recognize differences in light intensities and to locate light sources and objects in his environment. Materials selected for sight utilization lessons should represent a variety of sizes and colors. The amount of detail depends upon the level of visual functioning the student demonstrates and the intent of the lessons. Activities calling for the use of vision can help both the student and the teacher assess under what conditions and with what kinds of materials a student can operate at his maximum level of visual efficiency.

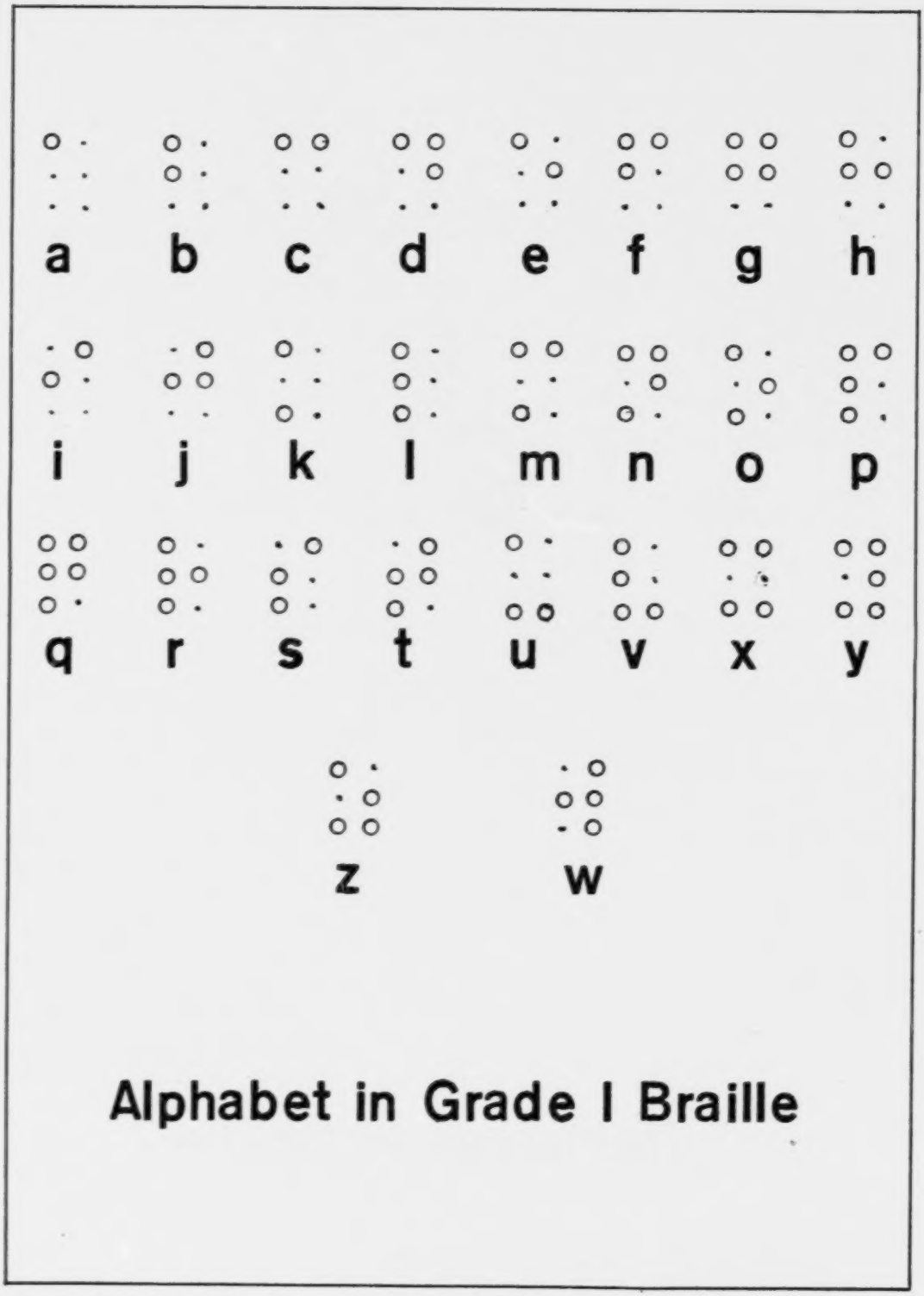


PLATE 6.1

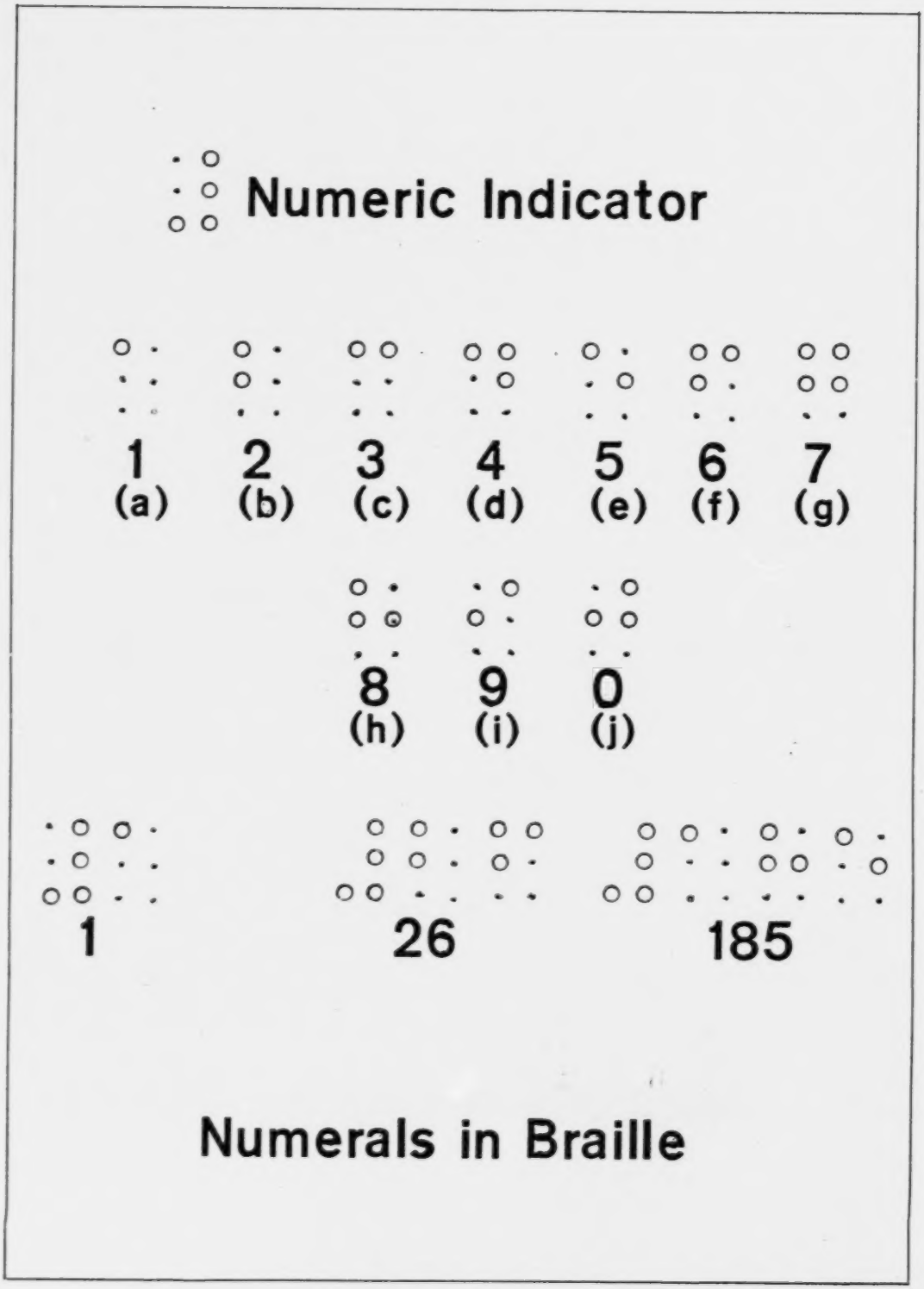

Numeric Indicator
1 (a)
2 (b)
3 (c)
4 (d)
5 (e)
6 (f)
7 (g)
8 (h)
9 (i)
0 (j)
1
26
185
Numerals in Braille

PLATE 6.2

CHAPTER SEVEN

SELECTION OF INSTRUCTIONAL MEDIA AND MATERIALS

Kinds

The range of available instructional materials is wide in terms of both kinds available and the complexity of design and operation. Teachers who are responsible for making decisions regarding the selection of instructional materials need to consider the learning task, the sensory input channels the student has available, and the level of physical and academic functioning.

Partially seeing students may read more efficiently if they use books with *large type*. Many school textbooks and supplementary reading materials are available in large type additions.

Blind students may use books which have been transcribed into *braille*. Often when books are not available in the form needed for either visual or tactile reading, they are recorded on *tapes* or *records*. *Talking Book Machines*, distributed by the local branches of the Library of Congress or designated agencies, are adapted record players available to visually handicapped students and to those who are physically handicapped.

Readers may assist some students by reading materials directly to them. A teacher aide, another student, or a paid reader may serve as a reader for students who require assistance in this manner.

Students with limited vision frequently use alternative ways to prepare their written work. A *typewriter* is essential for both partially seeing and blind students, who can use it to type papers and other work that cannot be done orally. Typing is often faster and more legible than handwriting and less visually demanding for the partially seeing student. Adequate typing skills are most important for the blind student.

Braille writing devices include the *brailler* and the *slate and stylus*. The brailler is a typewriter-like machine which embosses braille characters. The slate and stylus provide a compact means for writing braille as both are small devices which take up little space.

The *abacus* has been developed as a tool for rapid computation. Modifications have been made to prevent the beads from slipping from their desired position.

Some examples of other aids which visually handicapped students may use to help them with school work are book stands, special writing materials such as felt tip pens, low vision aides such as magnifying lenses, and high intensity lamps.

Not all visually handicapped children need all the materials and equipment mentioned here. Some children do not need any. The majority, however, profit from a careful selection of instructional materials and aids which either have been designed for visually handicapped students or are drawn from the large supply of instructional materials available to normally seeing children. Occasionally, some students who do need special materials are reluctant to use any because of the attitudes of others toward their use. The teacher's attitudes toward alternative materials can facilitate or impede a student's acceptance and use of what is necessary.

Sources of Materials

Special material and equipment are available from a large number of sources. Depending upon the resources available in your local school district, you may want to consider various alternatives. If your local district has an itinerant teacher or resource room teacher, either one of these teachers should be able to refer you to the proper sources. Often the director of special education will have the proper information. Local, state, and national instructional materials centers are valuable sources of information and materials. In most states, the state department of education can supply you with addresses and direct your requests to the right place. Several of the major sources of instructional materials for visually handicapped children are listed below.

American Printing House for the Blind, Inc.
1839 Frankfort Avenue
Louisville, Kentucky 40206

Library of Congress
Division for Blind and Physically Handicapped
Washington, D.C. 20542

National Aid to Visually Handicapped
3201 Balboa Street
San Francisco, California 94121

Recording for the Blind, Inc.
215 East 58th Street
New York, New York 10022

Stanwix House, Inc.
3020 Chartiers Avenue
Pittsburgh, Pennsylvania 15204

Criteria for Selection of Instructional Materials

The person responsible for making decisions regarding the selection of instructional materials should consider certain factors in addition to the task, the

sensory channels available, and the level of visual functioning. These factors include durability, size, color, texture, safety, adaptability, complexity, and relative cost.

Criteria for Selection of Print Materials

Print materials must frequently meet a variety of requirements before they can be used efficiently by students who are visually handicapped. Factors to consider in choosing printed materials are type size and style, space between lines of print, page layout, and paper weight and finish.

It is imperative that teachers remember that providing large type materials alone does not automatically serve as a solution to a child's learning difficulties.

CHAPTER EIGHT

ARRANGEMENT OF CLASSROOM ENVIRONMENTAL CONDITIONS

A variety of classroom environmental conditions affects the learning of both visually handicapped and normally seeing children. Among these are light, noise level, furniture and equipment, temperature, and space.

Light

The amount and direction of light should be controlled to provide adequate illumination and to prevent both direct and reflected glare. Glare, described as any light reaching the eyes in a way that causes discomfort or inefficiency, often comes from objects and surfaces within the classroom. These may be shiny desk and table tops, waxed floors, walls, chalkboards, glossy charts, and sink tops.

Contrasts between the illumination of an object and its surroundings can create visual interest and draw attention. Excessive brightness differences, however, can actually impede learning. Extreme differences between an object or page and the adjacent surfaces may produce discomfort just as glare does.

The color and the position of the light source in relation to the object or page are also important considerations when planning classroom light arrangements.

Noise Level

Noise levels in a classroom affect children in various ways. The distracting sounds which permeate a classroom may be blocked out or turned off by some students. Distracting background noises, however, may prevent other students from attending to their school tasks. For partially seeing students who expend more physical energy on visual tasks than normally seeing students, the noise level in the working area is particularly important. For blind students, who use their listening as a major input channel, noise and sound levels are critical considerations.

Furniture and Equipment

Furniture in many classrooms today is movable rather than bolted to the floor. This is especially good for students who are visually handicapped because of their fluctuating lighting requirements and their space needs for special equipment during certain learning tasks. Furniture should be adjustable for children of different sizes and for different activities. Chairs that are too high or too low should be exchanged or adjusted for those of a suitable height. Color and finish are most important to consider when making choices of new classroom furniture.

Temperature

Temperature is a more subtle environmental factor. Teachers who can regulate the amount of heat in their rooms need to consider the season, draft flow around the room, outside weather, general health conditions of the students, and the type of activity in progress.

Space

Space in the classroom is usually used for work activities, for storage, and for moving about. Space requirements for visually handicapped children are quite similar to those for children with normal vision; more space, however, is needed for storage of books and equipment for visually handicapped children.

General Considerations

Decisions regarding the selection of a work space, the position of lights and furniture, and the amount of heat and ventilation are influenced by the requirements of the specific learning task chosen for the student and the materials needed for him to complete the task. Of course, as mentioned before, the student's level of visual functioning and the existence of any other sensory deficits greatly influence the design of the task and the selection of appropriate materials.

CHAPTER NINE

DESIGN OF INSTRUCTIONAL PROCEDURES

In the preceding chapters of CARE 4, you have learned that, while instructional goals may remain the same for students who are partially seeing or blind as for their normally seeing classmates, the materials they use and the procedures they follow may vary. Now you will have an opportunity to apply some of the information you have learned. You will be asked to make instructional decisions regarding appropriate instructional materials and procedures for two fictitious children. To assist you in making decisions about specific tasks for these children, certain information has been provided for each child at the end of this chapter. This information, typical of the kinds of information a teacher might receive about a visually handicapped child, is as follows:

Promotion Record

The Promotion Records show where each child started school and is presently living, the child's teachers in each grade, and when vision and hearing screenings were conducted.

Eye Report

The Eye Reports, completed by each child's eye specialist, contain information regarding the child's eye condition, visual acuity with and without correction, visual field, prognosis, and recommendations for future eye care.

Achievement Profile

The Achievement Profiles indicate achievement based on the most recent results of standardized tests. Teacher comments pertaining to test administration have also been included.

Anecdotal Record

Selected portions of Anecdotal Records report significant behaviors teachers observed in both planned and unplanned situations.

Promotion Record

Treesdale Valley School District

Student's Name Jean L. Manning Sex F Age 9
Address 60 Willow Lane - Treesdale Phone 689-0001
Previous Residence Portland, Oregon
Place of Birth Oregon
Father's Name Paul J.
Address 60 Willow Lane
Occupation Lumber Mill Supv. School Grades Completed 14
Mother's Name Martha A.
Address 60 Willow Lane
Occupation Housewife School Grades Completed 12
Number of Brothers 1 Number of Sisters 1 Position in Family 2

* * *

Physical Defects See Vision
Comments
Vision Poor Grades Screened K 1 2 3 (4) 5 6 7 8 9
Comments See eye report; under medical care for glaucoma
Hearing Normal Grades Screened K 1 2 3 (4) 5 6 7 8 9
Comments

* * *

Grade	Teacher	Comments
K-3	Oregon	
4	E. Miller	good student, uses large type, requires front seat, can type
5	A. Myers	

CONFIDENTIAL

EYE REPORT FOR CHILDREN WITH VISUAL PROBLEMS

RLB

NAME OF PUPIL (Type or print) Fran (First) L. (Middle) Manning (Last) SEX F RACE

ADDRESS 60 Willow Lane, Treesdale (Highland) Pa. Age 10-0
(No. and street) (City or town) (County) (State)

GRADE 5 SCHOOL Spruce Elementary ADDRESS

I. HISTORY

A. Probable age at onset of vision impairment. Right eye (O.D.) birth Left eye (O.S.) birth

B. Severe ocular infections, injuries, operations, if any, with age at time of occurrence none known

C. Has pupil's ocular condition occurred in any blood relative(s)? Yes If so, what relationship(s)? Father

II. MEASUREMENTS

(See back of form for preferred notation for recording visual acuity and table of approximate equivalents.)

A. VISUAL ACUITY

	DISTANT VISION			NEAR VISION			PRESCRIPTION		
	Without correction	With best correction*	With low vision aid	Without correction	With best correction*	With low vision aid	Sph.	Cyl.	Axis
Right eye (O.D.)	1/200	20/200			J 12		+12.50	+1.50	x120
Left eye (O.S.)	1/200	20/200			J 20		+12.50	+2.00	x105
Both eyes (O.U.)							O.U.	+3.00	vertex

Date

B. If glasses are to be worn, were safety lenses prescribed in: Plastic X Tempered glass

*with ordinary lenses

C. If low vision aid is prescribed, specify type and recommendations for use.

D. FIELD OF VISION: Is there a limitation? Yes If so, record results of test on chart on back of form.

What is the widest diameter (in degrees) of remaining visual field? O.D. O.S. aphakic field for both

E. Is there impaired color perception? No If so, for what color(s)?

III. CAUSE OF BLINDNESS OR VISION IMPAIRMENT

A. Present ocular condition(s) responsible for vision impairment. (If more than one, specify all but underline the one which probably first caused severe vision impairment.)
O.D. Congenital cataracts – O.U.
O.S. Congenital nystagmus – O.U.

B. Preceding ocular condition, if any, which led to present condition, or the underlined condition, specified in A.
O.D. not known
O.S. " "

C. Etiology (underlying cause) of ocular condition primarily responsible for vision impairment. (e.g., specific disease, injury, poisoning, heredity or other prenatal influence.)
O.D. not known
O.S. " "

D. If etiology is injury or poisoning, indicate circumstances and kind of object or poison involved. –

IV. PROGNOSIS AND RECOMMENDATIONS

A. Is pupil's vision impairment considered to be: Stable O.D. Deteriorating O.S. Capable of improvement Uncertain

B. What treatment is recommended, if any? Surgery for glaucoma of left eye

C. When is reexamination recommended? monthly

D. Glasses: Not needed To be worn constantly X For close work only Other (specify)

E. Lighting requirements: Average X Better than average Less than average

F. Use of eyes: Unlimited X Limited, as follows:

G. Physical activity: Unrestricted Restricted, as follows: No physical contact sports

TO BE FORWARDED BY EXAMINER TO:

Signature of examiner W. F. Jenkins Degree M.D.

Address

If clinic case: Number Name of clinic

F.M.

PREFERRED VISUAL ACUITY NOTATIONS

DISTANT VISION. Use Snellen notation with test distance of 20 feet. (Examples: 20/100, 20/60). For acuities less than 20/200 record distance at which 200 foot letter can be recognized as numerator of fraction and 200 as denominator. (Examples: 10/200, 3/200). If the 200 foot letter is not recognized at 1 foot record abbreviation for best distant vision as follows:

HM	HAND MOVEMENTS
PLL	PERCEIVES AND LOCALIZES LIGHT IN ONE OR MORE QUADRANTS
LP	PERCEIVES BUT DOES NOT LOCALIZE LIGHT
No LP	NO LIGHT PERCEPTION

NEAR VISION. Use standard A.M.A. notation and specify best distance at which pupil can read. (Example: 14/70 at 5 in.)

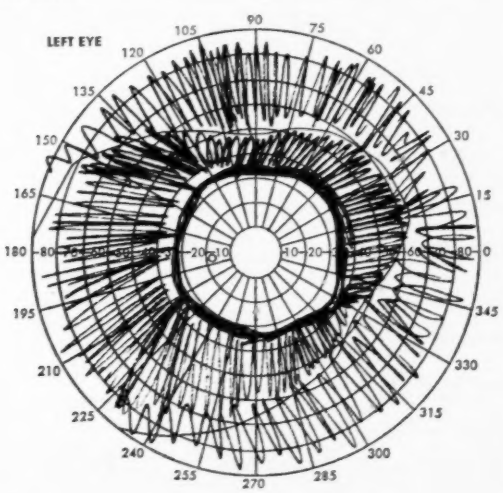
TABLE OF APPROXIMATE EQUIVALENT VISUAL ACUITY NOTATIONS

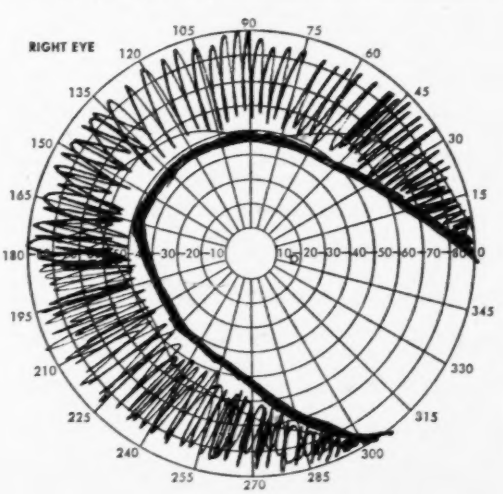
These notations serve only as an indication of the approximate relationship between recordings of distant and near vision and point type sizes. The teacher will find in practice that the pupil's reading performance may vary considerably from the equivalents shown.

Distant Snellen	*Near*			*% Central Visual Efficiency for Near*	*Point*	*Usual Type Text Size*
	A.M.A.	*Jaeger*	*Metric*			
20/20 (ft.)	14/14 (in.)	1	0.37 (M.)	100	3	Mail order catalogue
20/30	14/21	2	0.50	95	5	Want ads
20/40	14/28	4	0.75	90	6	Telephone directory
20/50	14/35	6	0.87	50	8	Newspaper text
20/60	14/42	8	1.00	40	9	Adult text books
20/80	14/56	10	1.50	20	12	Children's books 9-12 yrs
20/100	14/70	11	1.75	15	14	Children's books 8-9 yrs.
20/120	14/84	12	2.00	10	18	Large type text
20/200	14/140	17	3.50	2	24	
12.5/200	14/224	19	6.00	1.5		
8/200	14/336	20	8.00	1		
5/200	14/560					
3/200	14/900					

FIELD OF VISION. Record results on chart below.

Type of test used:_____ Illumination in ft. candles:_____





Test object: Color(s)_____ Size(s)_____ Test object: Color(s)_____ Size(s)_____

Distance(s):_____ Distance(s):_____

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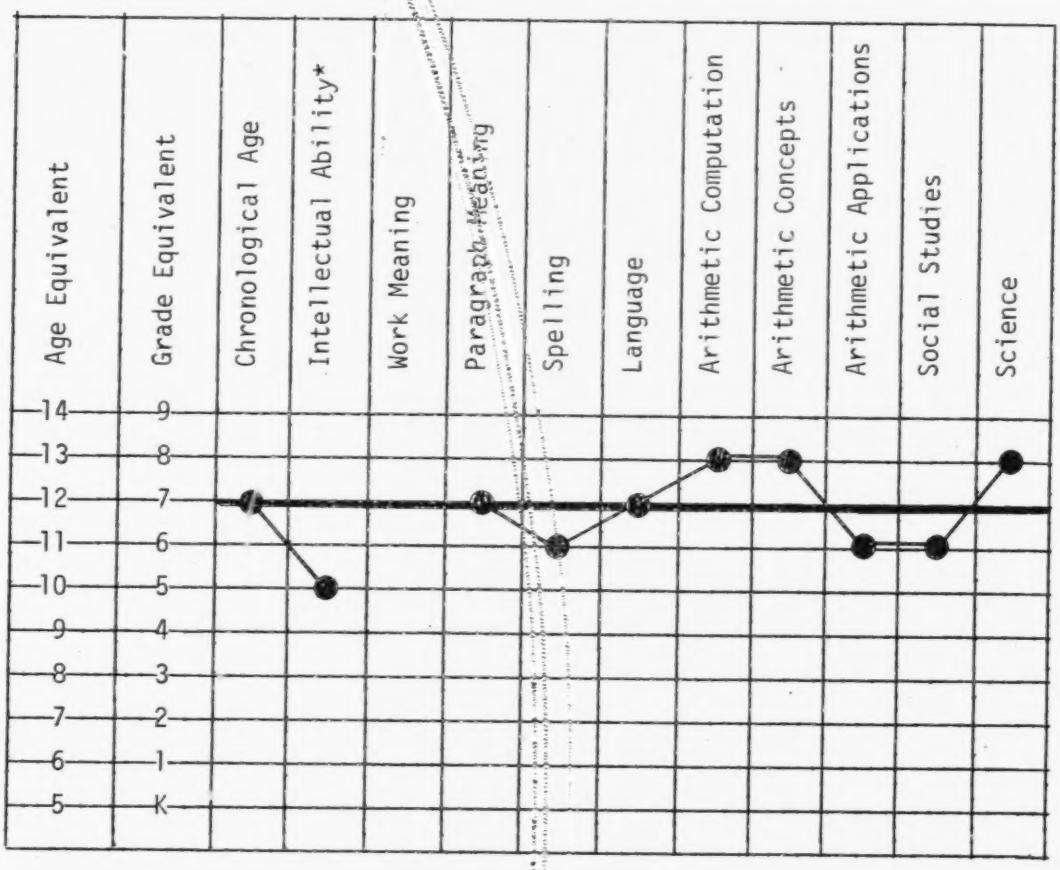
ACHIEVEMENT PROFILE

Student's Name Fran Manning Age at Test Date 10-3

Test Stanford Achievement Test, Int. II, Form W

Test Administrator A Myers and B Wilson (Itinerant Teacher)



*Test used: WISC Full Scale 103 Date _____

Comments: Fran took the shorter subtests with her class. Miss Wilson administered the longer subtests and gave her extended time limits

ANECDOTAL RECORD

STUDENT Fran M.

DATE	COMMENT
Feb. 8	Fran arranged her second semester books on the shelf by her desk. She tilts her head to read more to the right.
Feb. 10	Fran's typing lessons are scheduled for Wednesday afternoon this term.
Feb. 12	Fran ran into Marilyn in the lunch room. She said she had not seen Marilyn coming toward her from the left.
Feb. 17	Fran asked to move to a seat directly in front of the TV for the TV science lesson. Her regular seat is next to the windows in the front of the room.
Feb. 18	Fran complained of a headache after completing her arithmetic assignment. Her left eye was red and watery.
Feb. 19	Fran was absent in AM – doctor's appointment. Her mother brought her to school for the afternoon session and requested that she be notified if Fran has any more headaches.
March 3	Fran played her part in the class play. Her extra practice paid off; she did not upset the basket of flowers.
March 10	Fran answered all the science questions correctly after Robin read her the science assignment. Mrs. Myers is continuing Fran's listening lessons this term.

Promotion Record

Treesdale Valley School District

Student's Name Fred A. Smeltz Sex M Age 5
Address 38 Maple Ave., Treesdale Phone 689-1000
Previous Residence
Place of Birth Treesdale
Father's Name L. James
Address 38 Maple Ave
Occupation ~~Building Contractor~~ School Grades Completed 17
Mother's Name Elizabeth K.
Address 38 Maple Ave.
Occupation Housewife - ~~Substitute Teacher~~ School Grades Completed 16
Number of Brothers 2 Number of Sisters 0 Position in Family 1

* * *

Physical Defects
Comments
Vision Poor Grades Screened (K) (1) 2 (3) 4 5 6 7 8 9
Comments See eye report
Hearing ~~OK~~ ? Grades Screened K (1) 2 3 4 (5) 6 (7) 8 9
Comments Referred for examination

* * *

Grade	Teacher	Comments
~~K~~-1	J. McSweeny	Poor in color and shape discriminations; good in counting
2	M. Lobesky	check seating; poor writing; good in numbers.
3	P. Stewart	Feed began typing lessons.
4	C Markle	improved reading; uses large type book
5	B Steiner	front seat - big books - likes to volunteer
6.	D. Grove	often types homework
7	L. McCauley	

CONFIDENTIAL

EYE REPORT FOR CHILDREN WITH VISUAL PROBLEMS

RLB

NAME OF PUPIL (Type or print) Fred (First) A. (Middle) Smeltz (Last) SEX m RACE

ADDRESS 38 Maple Avenue (No. and street) Treesdale (City or town) (Highland) (County) Pa. (State) Age 12-6

GRADE 7 SCHOOL Evergreen Jr. High ADDRESS

I. HISTORY

A. Probable age at onset of vision impairment. Right eye (O.D.) birth Left eye (O.S.) birth

B. Severe ocular infections, injuries, operations, if any, with age at time of occurrence

C. Has pupil's ocular condition occurred in any blood relative(s)? No If so, what relationship(s)?

II. MEASUREMENTS

(See back of form for preferred notation for recording visual acuity and table of approximate equivalents.)

A. VISUAL ACUITY

	DISTANT VISION			NEAR VISION			PRESCRIPTION		
	Without correction	With best correction*	With low vision aid	Without correction	With best correction*	With low vision aid	Sph.	Cyl.	Axis
Right eye (O.D.)		10/200				20/70	+6.00		
Left eye (O.S.)		10/200				20/70	+7.00		
Both eyes (O.U.)		10/200				20/70	Low vision aid +18.5		

Date

B. If glasses are to be worn, were safety lenses prescribed in: Plastic Tempered glass X *with ordinary lenses

C. If low vision aid is prescribed, specify type and recommendations for use. Bifocal

D. FIELD OF VISION: Is there a limitation? No If so, record results of test on chart on back of form.

What is the widest diameter (in degrees) of remaining visual field? O.D. O.S.

E. Is there impaired color perception? Yes If so, for what color(s)? Red-Green

III. CAUSE OF BLINDNESS OR VISION IMPAIRMENT

A. Present ocular condition(s) responsible for vision impairment. (If more than one, specify all but underline the one which probably first caused severe vision impairment.)
O.D. Amblyopia – congenital bilateral
O.S. "

B. Preceding ocular condition, if any, which led to present condition, or the underlined condition, specified in A.
O.D.
O.S.

C. Etiology (underlying cause) of ocular condition primarily responsible for vision impairment. (e.g., specific disease, injury, poisoning, heredity or other prenatal influence.)
O.D. Amblyopia – congenital, bilateral
O.S.

D. If etiology is injury or poisoning, indicate circumstances and kind of object or poison involved.

IV. PROGNOSIS AND RECOMMENDATIONS

A. Is pupil's vision impairment considered to be: Stable X Deteriorating Capable of improvement Uncertain

B. What treatment is recommended, if any? Spec. vis. aid

C. When is reexamination recommended? yearly

D. Glasses: Not needed To be worn constantly For close work only Other (specify)

E. Lighting requirements: Average Better than average Less than average

F. Use of eyes: Unlimited Limited, as follows:

G. Physical activity: Unrestricted Restricted, as follows:

TO BE FORWARDED BY EXAMINER TO:

Signature of examiner R.L. Frey Degree MD

Address

If clinic case: Number Name of clinic

F.S.

PREFERRED VISUAL ACUITY NOTATIONS

DISTANT VISION. Use Snellen notation with test distance of 20 feet. (Examples: 20/100, 20/60). For acuities less than 20/200 record distance at which 200 foot letter can be recognized as numerator of fraction and 200 as denominator. (Examples: 10/200, 3/200). If the 200 foot letter is not recognized at 1 foot record abbreviation for best distant vision as follows:

HM	HAND MOVEMENTS
PLL	PERCEIVES AND LOCALIZES LIGHT IN ONE OR MORE QUADRANTS
LP	PERCEIVES BUT DOES NOT LOCALIZE LIGHT
No LP	NO LIGHT PERCEPTION

NEAR VISION. Use standard A.M.A. notation and specify best distance at which pupil can read. (Example: 14/70 at 5 in.)

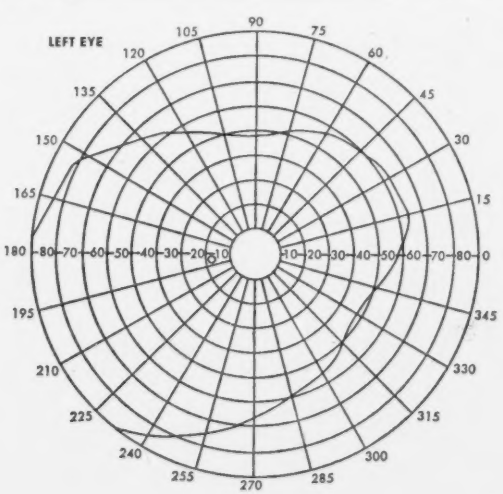
TABLE OF APPROXIMATE EQUIVALENT VISUAL ACUITY NOTATIONS

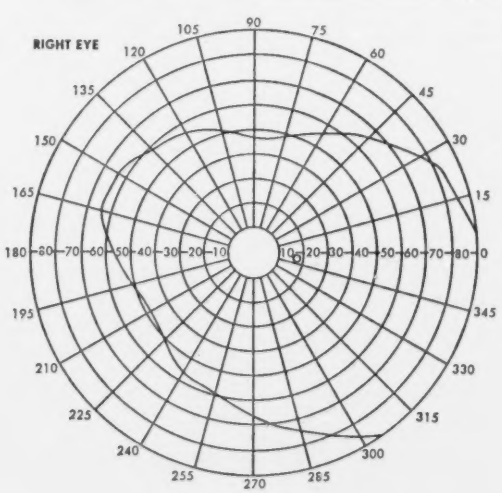
These notations serve only as an indication of the approximate relationship between recordings of distant and near vision and point type sizes. The teacher will find in practice that the pupil's reading performance may vary considerably from the equivalents shown.

Distant Snellen	*Near*			*% Central Visual Efficiency for Near*	*Point*	*Usual Type Text Size*
	A.M.A.	*Jaeger*	*Metric*			
20/20 (ft.)	14/14 (in.)	1	0.37 (M.)	100	3	Mail order catalogue
20/30	14/21	2	0.50	95	5	Want ads
20/40	14/28	4	0.75	90	6	Telephone directory
20/50	14/35	6	0.87	50	8	Newspaper text
20/60	14/42	8	1.00	40	9	Adult text books
20/80	14/56	10	1.50	20	12	Children's books 9-12 yrs
20/100	14/70	11	1.75	15	14	Children's books 8-9 yrs.
20/120	14/84	12	2.00	10	18 }	Large type text
20/200	14/140	17	3.50	2	24 }	
12.5/200	14/224	19	6.00	1.5		
8/200	14/336	20	8.00	1		
5/200	14/560					
3/200	14/900					

FIELD OF VISION. Record results on chart below.

Type of test used:_____ Illumination in ft. candles:_____





Test object: Color(s)_____ Size(s)_____ Test object: Color(s)_____ Size(s)_____

Distance(s):_____ Distance(s):_____

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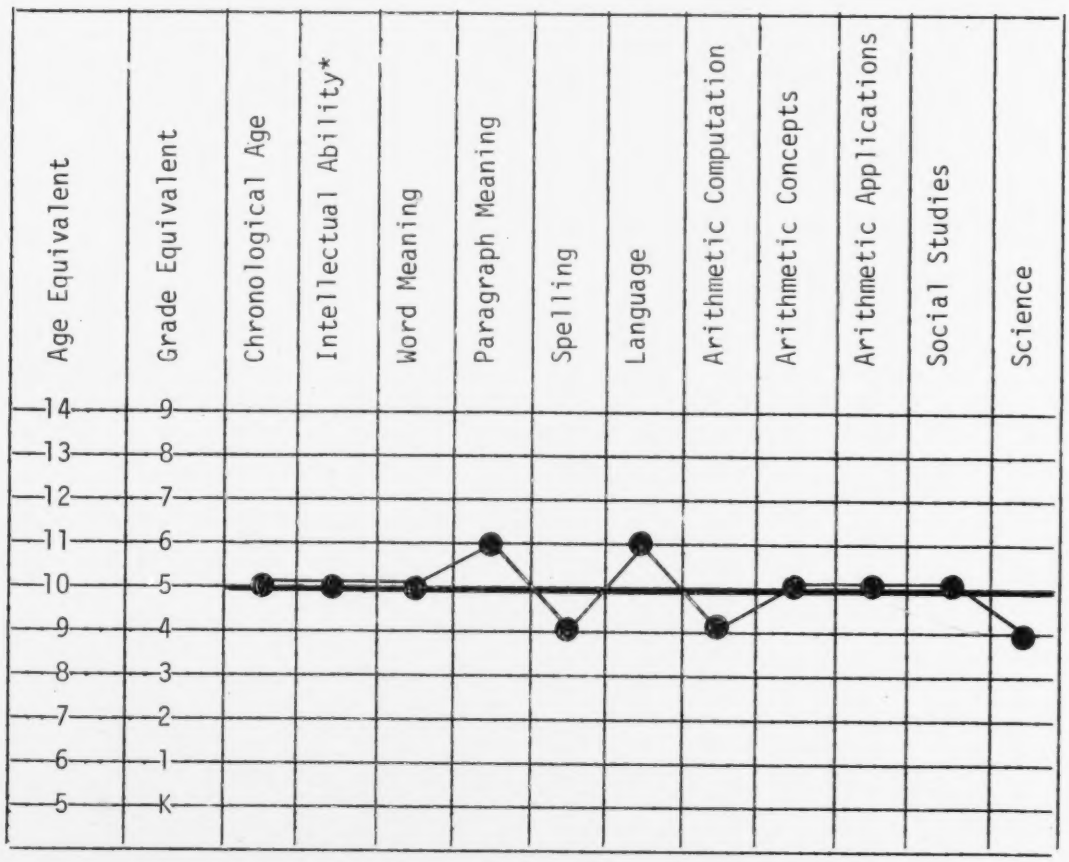
ACHIEVEMENT PROFILE

Student's Name Fred A Smelty Age at Test Date 12-11

Test Stanford Achievement Test, Advanced Battery, Form W.

Test Administrator Mc Cauley



*Test used: Otis-Quick Scoring Mental Ability Test Date 11-9

Comments: Fred performs in class much better than his intellectual ability test
He used a large print copy of the SAT test with his low vision aid and had extended time limits

ANECDOTAL RECORD

STUDENT Fred S.

DATE	COMMENT
Sept. 10	Fred took his large type books home to use there. He will try using regular print in school with his low vision aid.
Sept. 17	Fred's tapes for history arrived. He arranged to keep his tape recorder in the Library conference room where he will also keep his large type dictionary.
Oct. 26	Fred's science teacher mentioned that Fred's unit report to the class had been on colorblindness. Mr. Adamson had not known Fred is color blind until Fred used himself as an example during his demonstration.
Nov. 20	Fred refused to do his English homework and turn in his paper. He said he could not read his hand-written paper and neither could anyone else. When Mrs. Kiley said he could type the paper, he agreed and turned it in the next day
Dec. 5	Fred talked to the basketball coach about being on the team. He admitted he was not a very good shot, but still he wanted to try out for the team. The coach agreed and suggested Fred consider applying for assistant team manager if he did not make it.

CHAPTER TEN

UTILIZATION OF APPROPRIATE TECHNIQUES FOR EVALUATING PERFORMANCE

In an earlier chapter you learned of various ways to collect information about children. One way was to observe behavior under either planned or incidental conditions in order to diagnose strengths and weaknesses in performance. In this chapter the focus will be on ways to observe or assess behavior in order to evaluate the product or the results of that performance. Usually such evaluations are made in the classroom by means of tests.

Tests are designed for specific purposes. They may be constructed to measure such things as achievement, intellectual abilities, specific aptitudes, or interests. The tests may be informal devices, as most teacher-made tests are, or they may be formal, standardized instruments with norms established for particular groups of students. Scores on these *norm-referenced* tests are interpreted in relation to the norms established for the group. It is important to determine if in fact the students being tested resemble the students on whom the test norms were established; if the students are not similar, then the norms are of questionable value in interpreting test scores.

An alternative to norm-referenced tests is *criterion-referenced* tests. Performance on criterion-referenced tests is compared to a predetermined acceptable level of competence. The scores in such tests are then interpreted with reference to an external standard or criterion, rather than to the scores of other students.

Many factors can affect a student's test performance, particularly if the student has only partial vision or is blind Factors related to test administration which can influence test performance include mode and medium of test item presentation, mode of student response, and testing time limits. The appropriateness of test items must also be considered since most standardized tests have been normed on groups of normally seeing students. Comparing test scores of a student who has limited vision or who is blind to scores of a group of children with normal vision may not yield much useful information. For these reasons when visually handicapped students are being tested, consideration should be given to the selection of testing materials, the test administration procedures, and the use made of test results.

Test Materials

Some test materials are available in large print and braille. The American Printing House for the Blind publishes several forms of frequently-used standardized tests. Others can be located through the itinerant, resource, or special class teacher of visually handicapped children or through the local instructional materials centers. Arrangements can be made with Educational Testing Services for students to take College Board examinations.

Test Procedures

Many tests and quizzes can easily be read to students whose reading speed is very slow or when tests are not available in a form the student can use efficiently. Teachers often find that their tests can be dictated to the students with limited vision or put on tape which the student can listen to with earphones while the other students are taking the printed tests.

Time limits for testing are suggested mainly for administrative convenience. For visually handicapped children with slower reading speeds, keeping to the suggested time limits is the same as not giving enough time. Therefore, the visually handicapped student might be permitted additional time or he might be allowed to complete the test in more than one testing session (see Plate 10.1).

Test answering procedures may also be modified for visually handicapped students (see Plate 10.2). It is sometimes most convenient to have the student dictate his answers on tape or to another student, the teacher, or a teacher aide. In other instances, typed or brailled answers are more expedient. Modified answer sheets are also considered as an alternative.

When it is necessary to estimate a visually handicapped student's intellectual abilities, the desirable substitute for group testing is an individually administered examination by a qualified and experienced person. Usually this person is a school psychologist or supervisor of special education.

Use of Test Results

Evaluation results can be used to identify areas of strength and weakness in student performance, indicate present levels of performance, assess the products of performance, and guide those making instructional decisions which will influence future student performance. Even under the best testing conditions, however, the results of some types of group tests have very limited value.

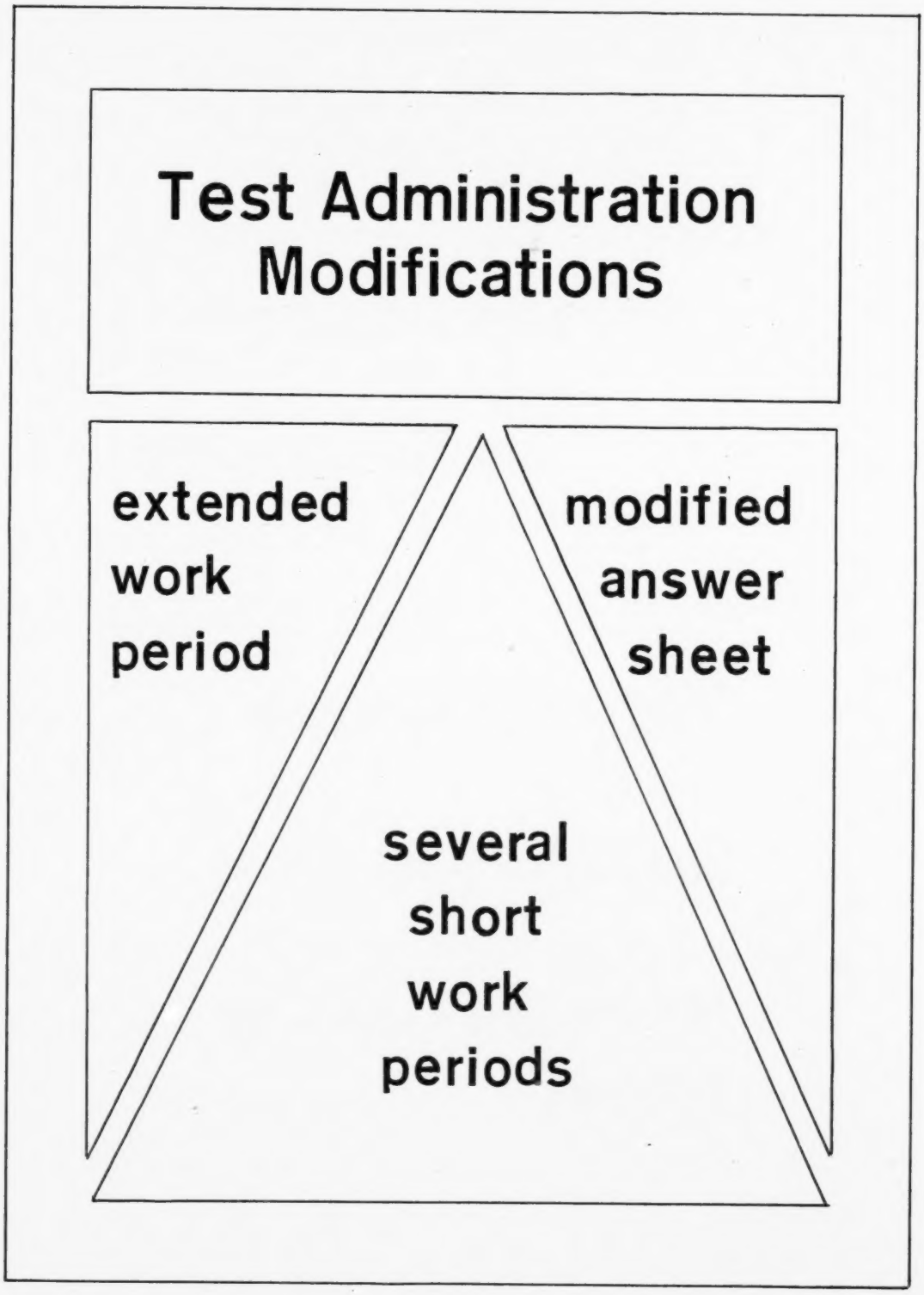

Test Administration Modifications
extended work period
modified answer sheet
several short work periods

PLATE 10.1

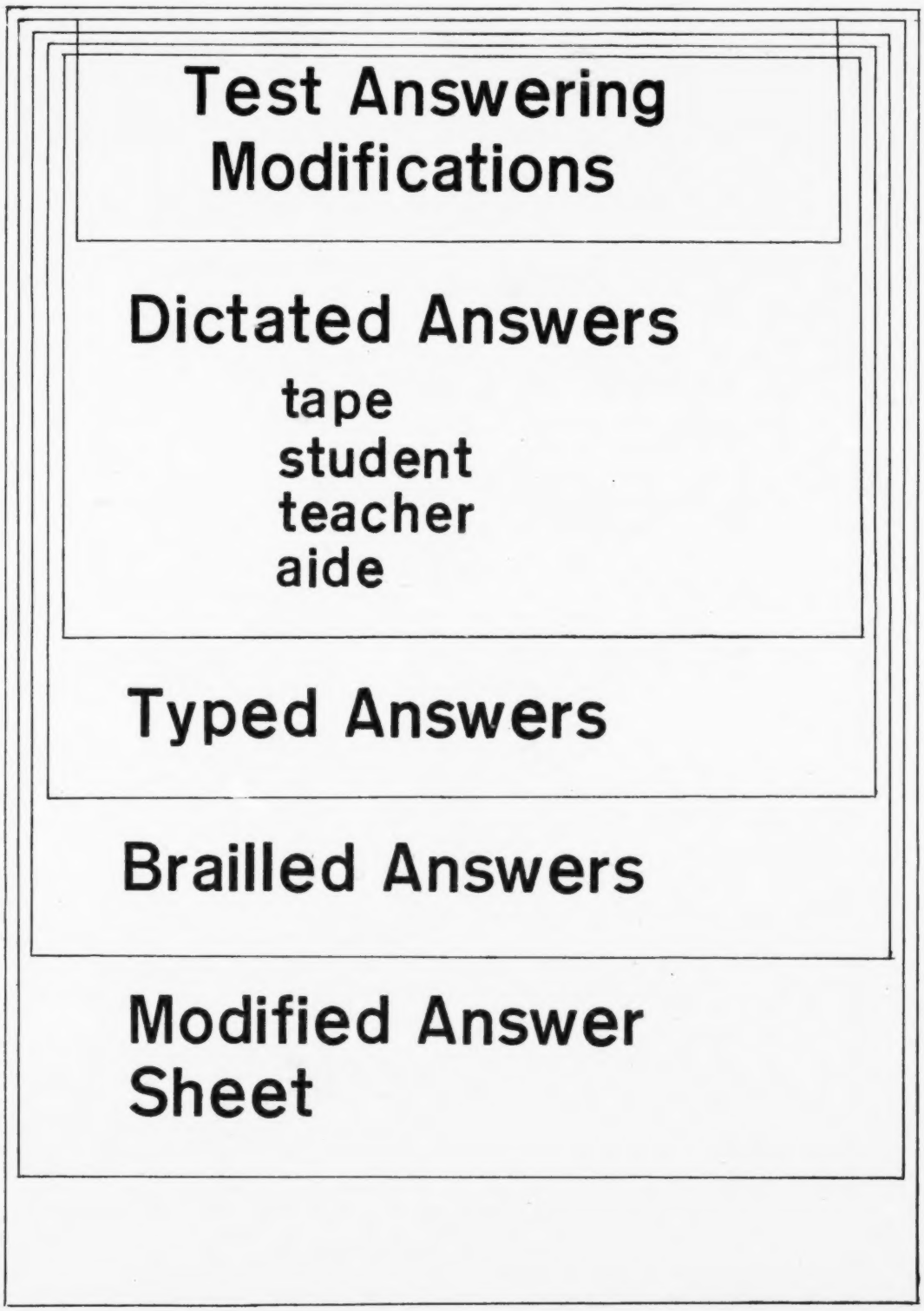

Test Answering Modifications
Dictated Answers
tape
student
teacher
aide
Typed Answers
Brailled Answers
Modified Answer Sheet

PLATE 10.2

CHAPTER ELEVEN

SUMMARY

Several points emphasized throughout CARE 4 warrent repetition in review.

1. Children who are visually handicapped can learn to make more efficient use of their auditory and tactile learning skills to assist them in assimilating information from their environments. Those children who have any useful vision should be encouraged to use whatever vision they have as efficiently and as effectively as possible.

2. Not all children who are visually handicapped are alike in their cognitive, affective, or psychomotor behaviors. One educational implication of this is that each student must be observed for educationally and instructionally relevant information that is useful in formulating appropriate instructional plans.

3. All children are influenced by those around them in the ways they think about themselves and how they regard themselves in relation to other people. Teachers and others who work with children can, by their attitudes, facilitate (or impede) the development of abilities and positive self-attitudes among children who have limited vision.

Keep these points in mind as you prepare to observe student behavior, construct suitable instructional objectives, select materials, arrange environmental conditions, design instructional procedures, and assess student performance.

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APPENDIX

APPENDIX

The children's books listed below are about children who have varying degrees of limited vision. Reading levels are indicated in parentheses for many of the books.

Classroom teachers may find this list a useful source of reading suggestions for their normally seeing and visually handicapped students, particularly those who are interested in similarities among human beings, in coping with individual differences, and in attitudes toward those who have limited vision.

BOOKS FOR CHILDREN ABOUT CHILDREN WITH LIMITED VISION

About Glasses for Gladys, Mary K. Ericsson, Melmont Publishers, Inc., Chicago, Illinois, 1962. (1 - 3)

Brave Companions, Ruth Knight, Doubleday and Company, Inc., Garden City, New York, 1945. (7 - 9)

Child of the Silent Night: Story of Laura Bridgeman, Edith F. Hunter, Houghton Mifflin Company, Boston, Massachusetts, 1963. (4 - 6)

Dark of the Cave, Ervie Rydberg, David McKay Company, Inc., New York, New York, 1965. (5 - 6)

Dark Summer, Dorothy Aldis, G. P. Putman Sons, New York, New York, 1947. (10 - 12)

Dawn from the West: Story of Genevieve, Margaret Rau, Hawthorne Books, Inc., Englewood Cliffs, New Jersey, 1964. (6 - 8)

A Dog to Trust, Joseph Chipperfield, David McKay Company, Inc., New York, New York, 1964. (7 - 9)

Finding My Way, Borghild Dahl, E. P. Dutton and Company, Inc., New York, 1962. (7 - 9)

Follow My Leader, James B. Garfield, The Viking Press, Inc., New York, New York, 1957. (6 - 8)

Katie's Magic Glasses, James Goodsell, Houghton Mifflin Company, Boston, Massachusetts, 1965. (4 - 6)

Light A Single Candle, Beverly Butler, Dodd, Mead and Company, Inc., New York, New York, 1962.

Mystery at Boulder Point, Eleanore Jewett, The Viking Press, New York, New York, 1949. (5 - 7)

Run with the Ring, Kathryn Vinson, Harcourt, Brace and World, Inc., New York, New York, 1965. (7 - 9)

Sound of Sunshine, Sound of Rain, Florence Heide, Parents Magazine Press, New York, New York, 1970.

Story of Helen Keller, Lorena Hickok, Grosset and Dunlap Company, New York, New York, 1958. (5 - 7)

Tide Treasure Camper, Elizabeth Montgomery, Ives Washburn, Inc., Washburn, New York, 1963.

Treasures of Greene Knome, L. M. Boston, Harcourt Brace Company, New York, New York, 2958.

Triumph of the Seeing Eye, Peter Putman, Harper and Row Publishers, Inc., New York, New York, 1963.

Windows for Rosemary, Margurite Vance, E. P. Dutton and Company, Inc., New York, New York, 1956. (3 - 5)